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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,184	12/21/2001	Mahmoud M. Khojasteh	FIS9-2001-0380-US1	1912

32074 7590 07/29/2003

INTERNATIONAL BUSINESS MACHINES CORPORATION  
DEPT. 18G  
BLDG. 300-482  
2070 ROUTE 52  
HOPEWELL JUNCTION, NY 12533

EXAMINER

HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 07/29/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/026,184

Applicant(s)

KHOJASTEH ET AL.

Examiner

Cynthia Hamilton

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1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### DETAILED ACTION

1. This application has been transferred from Examiner Nicole Barreca from Art Unit 1756 to Examiner Cynthia Hamilton from Art Unit 1752 because of applicant's election of Group I in Paper No. 5. This examiner will keep this application regardless of the Group elected. A complete restriction is given if in view of the new restriction, applicants desire to shift to Group

II.

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

Ia. Claims 1-11 and 13, drawn to a composition for use as a planarizing underlayer and a lithographic structure wherein said composition is present as a planarizing under layer, classified in class 430, subclass 271.1.

Ib. Claim 12 and 17, drawn to a patterned lithographic structure patterned from a lithographic structure with a planarizing underlayer, classified in class 430, subclass 18.

Ic. Claims 19-20, drawn to a composition comprised of a crosslinker, classified in class 525, subclass 192.

II. Claims 14-16, 18, drawn to a patterning method, classified in class 430, subclass 322.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions Ia/Ib and Ic are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different modes of operation. The compositions which make up the

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heart of Group Ia and Ib depend upon the cyclic ether moiety to crosslink while Group Ic does not have a cyclic ether present in the polymer but instead as given in claim 20 wherein a phenolic group is present depend upon a group in the polymer crosslinking with a separate agent. Thus, the compositions as claimed and defined in the specification are two separate embodiments.

Thus they are unrelated in operation.

4. Inventions Ia and Ib are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a photoresist wherein a photoacid generator is used or as a protective coating wherein overall cure occurs and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention. The examiner notes that the patterned structure of claim 12 is in reference to an imaged layer and not the imaging layer of claim 11. Thus, the structure of claim 11 is modified to obtain the structure of claim 12. With respect to claim 17, the examiner is unsure what is being claimed because there is no structure in claim 14 to which a silicon-containing resist could be attached, i.e. there is no clear antecedent basis for the structure

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of claim 17 in claim 14. The examiner suggests applicants consider what is meant by claim 17 and amend it accordingly if it is to be examined beyond the issue of clarity.

5. The examiner notes for the record that what is claimed in Ia, claim 11 is the planarizing layer uncured, i.e. the radiation-sensitive imaging layer is on a planarizing layer wherein the cyclic ether moieties are still intact. This is not the reacted planarizing layer of page 4, lines 17-19 onto which a radiation-sensitive imaging layer is placed. This reacted layer would not have remaining intact the cyclic ether groups since they would be crosslinked. Such an element as formed by step (c), lines 20-21, on page 4 is a separate element from that found in Ia. If the element of page 4 lines 20-21 were intended by Ia then a separate Iab group would be separate as claims 11 and 13 and Iaa group as claims 1-10. If this the intention of Ia, then Inventions Iaa and Iab are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a photoresist wherein a photoacid generator is used or as a protective coating wherein overall cure occurs and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention. Group Iaa drawn to a composition comprised of a polymer and acid generator would

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be classified in Class 526, subclass 242+ and Group Iab drawn to a lithographic structure would be classified in Class 430, subclass 271.1. The examiner states this to make clear all of applicant's options before examination occurs. If Group Iab is desired applicants need to amend claims to show such and elect group Iab specifically. If only Group Ia is elected, the examiner will restrict out claims of Group Iab if presented after election.

6. Inventions Ia and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed cant be sued in a materiall different process of using that product such as a photoresist wherein a photoacid generator is used or as method of using a planarizing layer that does not include a pattern wise exposure step such as ink jetting down a resist in a patternwise fashion that is cured with overall exposure.

7. Inventions Ib and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by having ink jetted down a resist layer and overall curing it.

8. Inventions II and Ic are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions the compositions of Ic are not used in the process of Group II.

9. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper. This is indicated by the transfer of this application upon election of group I from the last Office Action.

10. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

11. Because these inventions are distinct for the reasons given above and the search required for Group Ia is not required for Group Ib, restriction for examination purposes as indicated is proper.

12. Due to the complexity of this second election the examiner made no attempt to contact applicant.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

13. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cynthia Hamilton whose telephone number is*

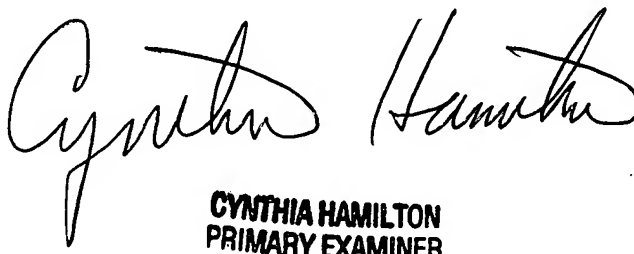
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*(703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on (703) 308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.*

*Any inquiry of a general nature or relating to the status of this application should be directed to the 1700 receptionist whose telephone number is (703) 308-0661.*

Cynthia Hamilton  
July 27, 2003



**CYNTHIA HAMILTON  
PRIMARY EXAMINER**